Gastric Alcohol Dehydrogenase (ADH) Activtty in The Antral Mucosa of Korean Gastric Disease Patients

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The bioavailability of orally consumed alcohol seems to be incomplete as compared with intravenous application of same dose of alcohol, indicating the possibility of first-pass metabolism in the gastrointestinal tract. The variations in the capacity of the gastric mucosal alcohol metabolism could be one of the determinants of its bioavailability and toxicity.

The aim of this study is to assess the effect of the gastric pathology on gastric ADH activity (GADH) in Korean patients. The GADH activity (nanomole NADH/min/mg cytosolic protein) was assayed with spectrophotometer by measuring the reduction of the level of NAD (GADH substrate, 2.4 mM) in the presence of the endoscopic gastric antral biopsy specimens. The total 89 gastric mucosal specimen consisting of 30 women and 59 men were investigated.

There was no significance in the sexual- or age-dependent differences in GADH activities of total 89 specimens. But in the relationship between gastric mucosal inflammation and GADH activity, active inflammatory mucosal specimens showed significantly lower activities than normal specimens (6.51 ± 1.16, n=41 versus 10.15 ± 0.84, n=48; $p<0.05$). The atrophic and metaplasic mucosal specimens showed slightly lower GADH activities than normal, but were not statistically significant. The *Helicobacter pylori (HP)* infection cases, which shows rapid urease test (CLOtest®)-positive, showed significantly lower GADH activity than negative (7.24 ± 0.69, n=53 versus 10.50 ± 1.09, n=36; $p<0.05$).

These results indicates that active inflammation and *HP* infection on the gastric mucosa may impairs the GADH-mediated gastric alcohol metabolism, thus maintaining higher blood alcohol levels and causing potentially greater systemic alcohol toxicity.